ABSTRACT

Terminal differentiation is associated with repression in the expression of the P2P subset of hnRNP proteins. The 5173 base pair P2P cDNA was cloned and characterized. The cDNA contains a 4214 base pair open reading frame. Probes to the P2P cDNA detect a single 8 kb mRNA in multiple murine tissues, in proliferating murine 3T3T cells but not in terminally differentiated 3T3T adipocytes. Evidence that the P2P cDNA can encode proteins with domains for hnRNP association was established by showing that the C130 monoclonal antibody, produced against a fusion protein derived from the P2P cDNA, selectively detects native P2P hnRNP proteins. In addition, it was shown that P2P antisense oligonucleotides selectively repressed 30-40 kDa P2P expression. Since terminal differentiation is also associated with modulation in Rb1 function, assays were performed which demonstrated that P2P cDNA products interact with Rb1. Evidence that the P2P cDNA encodes a protein domain that binds Rb1 was established using a GST-P2P fusion protein to selectively precipitate Rb1. Data also show that this binding is competed by the adenovirus E1a protein, indicating that binding occurs through the "pocket" domain of Rb1. These results establish that the P2P cDNA encodes protein domains involved in both hnRNP association and Rb1 binding and complement recent reports that localize Rb1 to sites of RNA processing in the nucleus. The interaction of P2P cDNA products and Rb1 may therefore serve to modulate cell proliferation and/or other

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biological functions associated with tumor suppression by an RNA processing mechanism.

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